



STRATHMORE INSTITUTE
DIPLOMA IN BUSINESS MANAGEMENT
DIPLOMA IN INTERNATIONAL RELATIONS/
DIPLOMA IN ENTREPRENEURSHIP
END OF SEMESTER EXAMINATION
DBM 1105/DIR 1105/DE1106: FUNDAMENTALS OF INFORMATION
TECHNOLOGY

DATE: 12th APRIL 2019

TIME: 2 Hours

Instructions

1. This examination consists of **FIVE** questions.
2. Answer **Question ONE (COMPULSORY)** and any other **TWO** questions.

SECTION A: (30 MARKS)

QUESTION ONE

- (a) *Multiple Choice Questions: Indicate the correct option (e.g. A/B/C/D/E) on the answer booklet.* **(15 marks)**

- | | |
|--|--|
| <p>i) Which generation of computer developed using integrated circuits?</p> <p>A. First generation B. Second generation C. Third generation D. Fourth generation E. Fifth generation</p> <p>ii) The process of loading the OS to memory is which of the following?</p> <p>A. Configuration B. Booting C. Authentication D. Installing E. None of the above</p> <p>iii) If a large business is going to use a single computer to run many programs for hundreds of users at</p> | <p>the same time, performing relatively simple operations and transactions, the type of computer will probably be a:</p> <p>A. Supercomputer B. Personal Computer (PC) C. Mainframe D. Internet Service Provider (ISP)</p> <p>iv) Rank the following media according to their access time starting from the one with the slowest to the one with fastest access time</p> <p>A. Primary cache, secondary cache, RAM, Hard-disk, Compact Disc</p> |
|--|--|

- B. Compact Disc, Hard-disk, RAM, secondary cache, Primary cache
 - C. Hard-disk, Compact Disc, Secondary cache, primary cache, RAM
 - D. Secondary cache, Primary cache, Hard-disk, RAM, Compact Disc
- v) Which one of the following is **not** an element of software?
- A. Visual Display Unit
 - B. Operating System
 - C. Utilities
 - D. Application packages
- vi) Which one of the following approximate measures is used to express a terabyte (TB)?
- A. 1,000 bytes of storage
 - B. 1000,000 bytes of storage
 - C. 1,000,000,000 bytes of storage
 - D. 1,000,000,000,000 bytes of storage
- vii) RAM provides a computer with:
- A. A temporary memory storage location
 - B. A place to store information as it is being swapped in and out of the CPU registers during data processing
 - C. A place to store memory-resident programs during processing
 - D. All of the above
- viii) _____ is the science that attempts to produce machines that display the same type of intelligence that humans do.
- A. Parallel processing
 - B. Nanotechnology
 - C. Simulation
 - D. Artificial intelligence (AI)
 - E. None of these
- ix) Which formulae from the list will give you the same results as this:

$$=(A2+A3+A4+A5+A6+A7)/6?$$
- A. =AVERAGE (A2*A7)
 - B. =SUM (A2:A7)/ 6
 - C. = AVERAGE (A2:A7)
 - D. =AVERAGE (A2, A7)
 - E. All of the above
- x) In Microsoft Excel, what is the intersection between a row and column called?
- A. A matrix
 - B. A cell
 - C. A range
 - D. A block
- xi) In order to access resources on the Internet, the location or address of the resources must be specified. These addresses are called:
- A. Uniform Resource Locators (URLs)
 - B. E-mail forms
 - C. Packets
 - D. Microsoft Network (MSN)
- xii) If a university sets up a web-based information system that the students could access to record student grades and to advise students, that would be an example of a/an
- A. CRM
 - B. Intranet
 - C. ERP
 - D. Extranet
 - E. None of the above
- xiii) An information system that supports the planning and assessment needs of executive management is
- A. DSS
 - B. TPS
 - C. ERP
 - D. MIS
 - E. None of the above
- xiv) Which of the following is NOT an example of a solid state storage device?
- A. Cache memory
 - B. Express Card
 - C. Smart card
 - D. Flash memory card

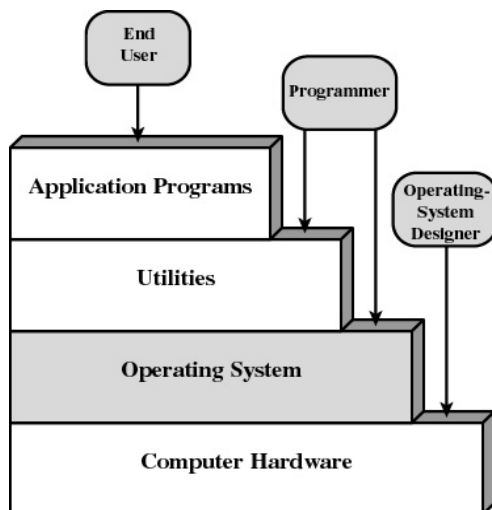
- (b) Discuss **three** provisions that can be made to cater for the needs of the physically challenged in regard to their use of input and output devices. **(3 marks)**
- (c) Computers can be broadly classified in various ways, by their speed and computing power, there are mini computers and super computers. Describe each of these types of computers. **(3 marks)**
- (d) Describe the role of any **two** major components of a processor. **(2 marks)**
- (e) The memory of a computer system contains both RAM and ROM. State **two** differences between RAM and ROM in a typical PC computer system. **(2 marks)**
- (f) State **one** item of software which would need to be stored in ROM, and give a reason for your choice. **(2 marks)**
- (g) Explain one application area (use) of each type of input hardware below: **(2 marks)**
- MICR – Magnetic-Ink Character Reader
 - Magnetic Stripe Card Readers.
 - OMR – Optical Mark Reader
 - Bar code reader
- (h) Explain the role of the following motherboard components: **(1 mark)**
- Complimentary Metal-Oxide Semiconductor (CMOS) battery
 - Buses

SECTION B: (15 MARKS per question. Choose any Two)

QUESTION TWO

- (a) The diagram below illustrates the structure of the Operating System consisting of 4 layers.

Use the diagram to answer the questions that follow:



- i) Discuss any **four** functions of an operating system. **(4 marks)**

- ii) Explain the role of utilities giving **two** examples of utility programs. **(2 marks)**
- iii) Briefly describe the duties of a programmer **(2 marks)**
- iv) Computer software is classified as system software and application software.
To which category does the operating system and application program belong? **(1 mark)**
- (b) Give **three** differences of system software and application software. **(3 marks)**
- (c) Describe the network operating system, giving **two** examples. **(3 marks)**

QUESTION THREE

- (a) Setting up computer networks brings about many benefits as well as social, ethical and political concerns.
Using appropriate examples of each differentiate between the following network terms:
 - i) Wide Area Network (WAN) and Local Area Network (LAN) **(3 marks)**
 - ii) Intranet and Extranet **(3 marks)**
- (b) Using appropriate examples discuss **four** benefits that Strathmore University would derive from having a computer network. **(4 marks)**
- (c) In the context of Africa today, discuss any **two** general political and or /social concerns that would arise from networking (use of computer networks). **(4 marks)**
- (d) List the two categories of network transmission media giving an example of each. **(1 mark)**

QUESTION THREE

- (a) Computer Based Information Systems (CBIS) are now a vital feature in many organizations and businesses. For Banks, Airlines, Hospitals, Learning institutions, Government, etc. to improve on services delivery, efficiency and cut costs, computer based systems have been integrated and play a central role. The real benefits or limitations of this automation process may not be tangible or even quantifiable for many users.
 - i) Using examples, discuss **three** limitations of integration and use of computer applications. **(3 marks)**
 - ii) CBIS have been used as tools to support managerial decision-making over the years and some of the various tools/decision aids in decision making can be grouped into the following categories:
 - Transaction processing systems (TPS)
 - Management information systems (MIS)
 - Decision support systems (DSS)
 - Executive/expert systems (ESS)

Explain the role of any **three** of these Information Systems in the various departments of an organization, clearly stating the levels of management that they serve. **(6 marks)**

- iii) Your mum's colleague would like to purchase a personal computer and asks for your advice.

What **three** aspects of the computer system would you advise that the colleague should take into consideration? Explain your advice. **(6 marks)**

QUESTION FOUR

- (a) The use of computers and networks indeed has many benefits but has also brought about number of security and safety concerns.

Explain the following terms/phrases in relation to information systems security.

(3 marks)

i) Denial of Service (DoS) Attack

ii) Intrusion detection software

iii) Firewall

- (b) What **three** activities constitute good password practice? **(3 marks)**

- (c) Explain any **three** codes of conduct for computer use. **(3 marks)**

- (d) Define a 'Computer Virus' and explain two possible sources of viral infections **(3 marks)**

- (e) Explain three symptoms of an infected computer system. **(3 marks)**

QUESTION FIVE

- (a) The following class performance data has been entered in an excel worksheet. Use the information given to answer the questions that follow.

| | A | B | C | D | E |
|----|---------------------------------|--------------|----------------|------------------|---|
| 1 | <u>Class Performance</u> | | | | |
| 2 | | | | | |
| 3 | Names | Maths | English | Geography | |
| 4 | | | | | |
| 5 | James Njuguna | 70 | 56 | 65 | |
| 6 | David Omondi | 34 | 12 | 45 | |
| 7 | Jane Akinyi | 67 | 29 | 52 | |
| 8 | Eather Chelangat | 89 | 90 | 85 | |
| 9 | John Kibore | 67 | 77 | 70 | |
| 10 | Florence Nanjala | 54 | 44 | 22 | |
| 11 | Hyacinth Owino | 60 | 14 | 17 | |
| 12 | Steetlamp Onyango | 87 | 65 | 83 | |
| 13 | | | | | |

- i) Write **three** different formulae which if placed in cell E5 will show the total marks for James Njuguna. **(3 marks)**

- ii) If the formula (for James Njuguna total marks), that you place in cell E5 is copied down the column to cell E12, what will be the formula in E12? **(1 mark)**
- iii) Write a function which if placed in cell B13 will show the highest score in Maths. **(1 mark)**
- iv) What feature in MS Excel would be used to copy the formula used in cell E5 along the range of cells E6:E12. **(1 mark)**
- v) Your classmate has approached you for help in creating a graduation invitation letter which she intends to print and send to fifty recipients. She has already designed a template invitation letter.

Explain to her the procedure that she would follow to create a mail merge document that she would send to the fifty guests. **(3 marks)**

(b) Digital computers internally use the binary (base 2) number system to represent data and perform arithmetic calculations. You have been asked to key in integer 139 into a computer.

- i) Convert this decimal integer to binary value which the computer will understand. **(2 marks)**
- ii) Convert your answer in (i) above to decimal number system. **(2 marks)**
- iii) Why are binary numbers important in computing? **2 marks)**